Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_

**Biotechnology History Timeline Assignment**

Osbourn Park Biology Team, Created by Ms. Martinez and Ms. Wilson-Keys

**A Brief History of Biotechnology**

The word biotechnology can be traced back to 1917, when it was used to refer to the large-scale production of material grown in vats, such a microbes. But the roots of technology are as familiar and as ancient as baking yeast, traceable back 6,000 years.

In addition to improved drug therapies, disease diagnosis and treatment benefits from genomics; these new technologies may allow doctors to test individual genetic profiles against a group of drugs available for a specific condition or order to identify the most effective treatment within the next 15 to 20 years.

Modern technology (1940) or second generation biotechnology grew out of molecular biology and genetic engineering and emerged after World War II. It involved the integration of microbiology, biochemistry and chemical engineering for large scale fermentation, sewage treatment, and for applications in the chemical and pharmaceutical industries.

Scientist can now manipulate DNA, the fundamental building block of life. Early results range from the manufacture of genetically engineered drugs to the cloning of Dolly the sheep. With the completion of the initial sequencing and draft of the human genome, the next step will be the identification of new kinds of drugs. It is expected that the number of drugs identified, tested and commercialized will increase six-fold over the next 20 years.

**Directions for Timeline**

Each student will need to create a timeline of events and people that have influenced biotechnology over the years. Using the provided list, your timeline will need to include all ten events, fifteen people, and fifteen total pictures of people and/or events.

For the people that you choose, please provide and describe their most significant contribution to the study of biotechnology and the approximate date of this contribution. If you cannot find an approximate date, simply list the lifespan of the scientist.

For the key events that you choose, please provided a detailed description of each event, the name of the scientist(s) who contributed to this event, and also the date this event occurred.

The fifteen pictures for the timeline need to be of different people and events. You may not have two pictures for the same person or event.

Try and pick events and people from all different time frames in history.

The timeline will be created on Prezi using the username: [ottolike@pwcs.edu](mailto:ottolike@pwcs.edu) and password: elephant. Please title your timeline with your first name and last initial – Biotechnology Timeline. For example, Ms. Ottolini’s timeline would have the title “Kate O – Biotechnology Timeline.”

**Key People in History**   **Key Events**

Anton van Leewenhoek The protein was discovered

Robert Hooke Mrna was discovered

Linus Pauling The potato was first cultivated

Edward Jenner Approval of GMO’s

Loius Pasteur Dolly the Sheep

Gregor Mendel The chromosome discovered

Alexander Flemming Genetic dog tags in the Army

Norman Borlaug DNA fingerprinting technique

Rosalind Franklin Human Genome Project

Watson/Crick Baboon-Human transplant occured

Zachaarias Janssen

Dr. Joseph Murray

Dr. Osamu Shimomula

Dr. Maurice Hilleman

Dr. Herbert Boyer

Louis Brown

Dr. Luc Montagnier

Dr. J Craig Venter

Robert Koch

**The History of Biotechnology Timeline Rubric**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  |  |

|  | 4 points | 3 points | 2 points | 1 point |
| --- | --- | --- | --- | --- |
| Quality of content | Information for events and people is relevant and important. No major details were excluded. | Most of information for the events and people if relevant and important. 1-2 major details were left out. | Some of the information for the events and people is relevant and important. 3-5 major details were left out. | More than 5 major details and events are left out. |
| Quantity of facts | The Timeline contains all 40 events, people, and pictures | The Timeline contains 30+ of the events, people, and pictures | The Timeline contains 20+ of the events, people, and pictures | The Timeline contains less than 20 events, people, and pictures. |
| Sequence of content/dates | Event are in the proper order with complete and accurate dates | Up to 3 event are not in the proper order with missing or incomplete dates | More than 3 events are not in the proper order with missing or incomplete dates | There are no dates and/or 10 or more events are out of order |
| Accuracy of the facts | Facts are accurate for all events on the timeline | Facts are accurate for more than 30+ events on the timeline | Facts are accurate for more than 20+ events on the timeline | Facts are accurate for less than 20 events on the timeline |

### TOTAL POINTS: \_\_\_\_\_/16